

**ABSTRACT OF THE DISCLOSURE**

Osteoarticular allografts are transplanted by techniques which ensure substantial surface contour matching. Specifically, surgical techniques are provided whereby a plug from an osteochondral allograft may be transplanted to a cavity site which remains after a condylar defect is removed from a patient's condyle. In this regard, the present invention essentially includes placing an osteochondral allograft in substantially the same orientation as the patient condyle, and then removing the transplantable plug therefrom and forming the cavity site in the patient condyle while maintaining their relative same orientation. In this manner, the surface of the transplanted plug is matched to the contour of the excised osteochondral tissue.

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